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10/631,985	07/31/2003	Jochen Junkawitsch	P17088-US1	2207

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ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/631,985	JUNKAWITSCH ET AL.
	Examiner	Art Unit	
	Jakieda R. Jackson	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   **Claims 1, 4 and 6, 9, 11, 13, 15, 19 and 21** are rejected under 35 U.S.C. 102(e)

as being anticipated by Mitchell et al. (USPN 6,574,595), hereinafter referenced as

Mitchell.

        Regarding claims **1, 11 and 19**, Mitchell disclose a method, recognizer and

system, hereinafter referenced as a method, of suppressing speech recognition errors

in a speech recognition system in which an input signal includes an echo from a system

voice prompt combined with user input speech, said method comprising the steps of:

        generating an acoustic model of the system voice prompt, said acoustic prompt

model mathematically representing the system voice prompt (ASR system models

acoustic speech; column 3, lines 27-66);

        supplying the input signal to a speech recognizer having an acoustic model of a

target vocabulary, said acoustic target vocabulary model mathematically representing at

least one command word (column 4, lines 27-38);

comparing the input signal to the acoustic prompt model and to the acoustic

target vocabulary model (column 3, lines 27-66);

determining which of the acoustic prompt model and the acoustic target

vocabulary model provides a best match for the input signal during the comparing step

(best match; column 3, lines 27-66);

accepting the best match if the acoustic target vocabulary model provides the

best match (column 3, lines 27-66 and column 6, lines 11-65); and

ignoring the best match if the acoustic prompt model provides the best match

(ignore contentless sound energy; column 1, lines 52-56 and column 3, lines 27-66 with

column 5, line 52 – column 6, line 65 and column 7, lines 26-40).

Regarding **claim 4**, Mitchell disclose a method wherein the step of generating an

acoustic model of the system voice prompt includes the steps of:

sending the speech signal of the system prompt to the speech recognizer (input

speech; column 3, lines 27-66); and

generating the acoustic prompt model from the speech signal immediately before

the comparing step (column 3, lines 27-66).

Regarding **claim 6**, Mitchell disclose a method further comprising the steps of:

comparing the input signal to a silence model, at least one out-of-vocabulary

word model, and at least one noise model (column 3, lines 28-67);

determining whether one of the silence, out-of-vocabulary, or noise models

provides the best match during the comparing step (best match; column 3, lines 28-67

with column 5, lines 38-43); and

ignoring the best match if one of the silence, out-of-vocabulary, or noise models provides the best match (ignore contentless sound energy; column 1, lines 52-56 with column 3, lines 27-66).

Regarding **claim 9**, Mitchell disclose a method wherein the step of supplying the input signal to the speech recognizer includes supplying to a simple connected word recognition grammar, the input signal in parallel with the acoustic target vocabulary model and the acoustic prompt model (column 4, lines 6-13).

Regarding **claims 13 and 21**, Mitchell discloses a recognizer further comprising means for generating the acoustic prompt model from the speech signal of the system voice prompt prior to playing the prompt (column 3, lines 28-67).

Regarding **claim 15**, Mitchell discloses a recognizer of claim further comprising a silence model, at least one out-of-vocabulary word model, and at least one noise model connected to the comparer in parallel with the acoustic vocabulary model and the acoustic prompt model (column 4, lines 6-13), wherein the comparer also determines whether the best match is provided by the silence model, the at least one out-of-vocabulary word model, or the at least one noise model, and if so, ignores the best match (column 3, lines 28-67).

Regarding **claim 18**, Mitchell discloses a recognizer wherein the comparer includes a comparison function selected from a group consisting of:

an arbitrary grammar (grammar; column 3, lines 28-67);

a simple connected word recognition grammar (recognition grammar; column 3, lines 28-67); and

a language model (models; column 3, lines 28-67).

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   **Claim 10** is rejected under 35 U.S.C. 102(b) as being anticipated by Bridges

(USPN 5,978,763).

Regarding **claim 10**, Bridges disclose a method of suppressing speech

recognition errors and improving word accuracy in a speech recognition system that

enables a user of a communication device to interrupt a system voice prompt with

command words that halt the voice prompt and initiate desired actions, said method

comprising the steps of:

generating an acoustic model of the system voice prompt, said acoustic prompt

model mathematically representing the system voice prompt (column 1, lines 41-46 with

column 6, lines 28-34);

storing the acoustic prompt model in a speech recognizer (column 4, lines 38-

48);

storing an acoustic target vocabulary model in the speech recognizer, said acoustic target vocabulary model including models of a plurality of command words (column 2, lines 38-44);

supplying the input signal to a comparer in the speech recognizer (column 6, lines 5-34);

comparing the input signal to the acoustic target vocabulary model and the acoustic prompt model to identify which model provides a best match for the input signal (column 6, lines 5-34);

ignoring the best match if the acoustic prompt model provides the best match (column 6, lines 5-36);

accepting the best match if the acoustic target vocabulary model provides the best match (column 6, lines 5-36);

supplying to an action table, any command word corresponding to the best match provided by the acoustic target vocabulary model (best match; column 3, lines 28-67);

identifying from the action table, an action corresponding to the supplied command word (column 6, lines 5-34);

halting the system voice prompt (column 4, lines 57-62); and

initiating the identified action (appropriate action is taken; column 4, lines 57-62).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Mitchell in view of Backfried et al. (USPN 6,801,893), hereinafter referenced as

Backfried.

Regarding **claim 2**, Mitchell disclose a method wherein the step of generating an

acoustic model of the system voice prompt is performed in advance of the comparing

step and includes the steps of:

determining phonetic units utilized in the system prompt (phonemes; column 3,

lines 27-66);

storing the phonetic units in a phonetic unit database accessible by the speech

recognizer (phonemes; column 3, lines 27-66 with column 6, lines 41-50 and column 8,

lines 47-66), but does not specifically teach providing the speech recognizer with an

orthographic text of the prompt prior to playing the prompt and building the prompt

model by the speech recognizer, said speech recognizer selecting and concatenating

appropriate phonetic units based on the orthographic text of the prompt.

Backfried teaches a method including the steps of:

providing the speech recognizer with an orthographic text of the prompt prior to playing the prompt (figure 1, element 101 with figure 4 and column 4, lines 21-38); and

building the prompt model by the speech recognizer, said speech recognizer selecting and concatenating appropriate phonetic units based on the orthographic text of the prompt (figure 1, element 105 with figure 4 and column 1, lines 43-55), for adding new words with yet unseen spellings and pronunciations to the vocabulary of a speech system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mitchell's method wherein it includes the steps of storing the phonetic units in a phonetic unit database accessible by the speech recognizer, but does not specifically teach providing the speech recognizer with an orthographic text of the prompt prior to playing the prompt and building the prompt model by the speech recognizer, said speech recognizer selecting and concatenating appropriate phonetic units based on the orthographic text of the prompt, as taught by Backfried, to add new words to a vocabulary which leads to reduced user frustration and an improved perception of system usability (column 3, lines 44-46).

Regarding **claim 3**, Mitchell disclose a method wherein a plurality of system voice prompts are stored in a system prompt database accessible by a prompt server that plays selected prompts, and phonetic units associated with the plurality of system voice prompts are stored in the phonetic unit database, and wherein the method further comprises, prior to supplying the input signal to the speech recognizer, the steps of:

instructing the prompt server to select and play a selected system prompt

(abstract with column 1, lines 52-56 with column 6, lines 41-50);

informing the speech recognizer (ASR) which system prompt (prompt) is going to

be played (abstract with column 1, lines 52-56 with column 6, lines 41-50); and

retrieving by the speech recognizer, phonetic units from the phonetic unit

database that are appropriate for an acoustic prompt model corresponding to the

selected system prompt (column 3, lines 27-66 and column 7, lines 26-40).

7.   **Claims 5, 14 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Mitchell in view of Hardwick (PGPUB 2004/0093206).

Regarding **claims 5, 14 and 22**, Mitchell discloses a method of suppressing

speech recognition errors, but does not specifically teach wherein the step of generating

an acoustic model of the system voice prompt includes generating the acoustic prompt

model at an attenuation level of approximately 20 dB relative to the system voice

prompt.

Hardwick discloses a method wherein the step of generating an acoustic model

of the system voice prompt includes generating the acoustic prompt model at an

attenuation level of approximately 20 dB relative to the system voice prompt (columns

8-9, paragraph 0080), to attenuate the undesirable harmonic sidelobes that are

introduced by the spectral magnitude quantizer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mitchell's method wherein the step of generating an acoustic model of the system voice prompt includes generating the acoustic prompt model at an attenuation level of approximately 20 dB relative to the system voice prompt, as taught by Hardwick, to reduce the amount of distortion and improve fidelity in the synthesized tome signal without requiring any modifications to the quantizer, thereby maintaining interoperability with the standard vocoder (column 9, paragraph 0080).

8.   **Claims 7-8 and 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell in view of Bridges.

Regarding **claims 7 and 16**, Mitchell disclose a method wherein the step of comparing the input signal to a silence model (silence), at least one out-of-vocabulary (out-of-vocabulary) word model, and at least one noise model (garbage; column 3, lines 27-66), but does not specifically teach a method wherein the comparing step includes comparing the input signal to a noise model that represents background babble.

Bridges discloses a method wherein the comparing step includes comparing the input signal to a noise model that represents background babble (background noise from a telephone conversation; column 1, lines 19-23), to take account of background noises.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mitchell's method wherein the comparing step includes comparing the input signal to a noise model that represents background babble, as taught by Bridges, to allow for the correct action to take place, even when there is noise present (column 1, lines 10-24).

Regarding **claims 8 and 17**, Mitchell disclose a method wherein the step of comparing the input signal to a silence model (silence), at least one out-of-vocabulary (out-of-vocabulary) word model, and at least one noise model (garbage; column 3, lines 27-66), but does not specifically teach a method including comparing the input signal to a noise model that represents background car noise.

Bridges discloses a method including comparing the input signal to a noise model that represents background car noise (noise of a car's engine; column 1, lines 19-23), to take account of background noises.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mitchell's method including comparing the input signal to a noise model that represents background car noise, as taught by Bridges, to allow for the correct action to take place, even when there is noise present (column 1, lines 10-24).

9.   **Claims 12 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Mitchell in view of Helbing (PGPUB 2005/0038659).

Regarding **claims 12 and 20**, Mitchell discloses a recognizer for suppressing

speech recognition errors, but does not specifically teach a recognizer comprising

means for generating the acoustic prompt model from a known text.

Helbing discloses a recognizer comprising means for generating the acoustic

prompt model from a known text (column 1, paragraph 0004), in order to be of service

to various users.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Mitchell's recognizer comprising means for

generating the acoustic prompt model from a known text, as taught Backfried, in order

to be of service to various users and for connection to a suitable terminal of the user

(column 1, paragraph 0003-0004).

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- Chengalvarayan et al. (USPN 6,606,595) disclose a HMM-based echo model for

  noise cancellation avoiding the problem of false triggers.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jakieda R. Jackson whose telephone number is

571.272.7619. The examiner can normally be reached on Monday through Friday from

7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Hudspeth can be reached on 571.272.7843. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

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JRJ
January 23, 2007

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER